



[6450-01-P]

DEPARTMENT OF ENERGY

Office of Energy Efficiency and Renewable Energy

[Case No. CAC-040]

Decision and Order Amending a Waiver Granted to Fujitsu General America, Inc. from the Department of Energy Commercial Package Air Conditioner and Heat Pump Test Procedures

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Decision and Order.

SUMMARY: This notice publishes the U.S. Department of Energy's (DOE) Decision and Order in Case No. CAC-040, which amends the current waiver applicable to Fujitsu's Airstage V-II products to require the use of Air-conditioning, Heating and Refrigeration Institute 1230 (AHRI) as the alternative test procedure.

DATES: This Decision and Order is effective **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

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SUPPLEMENTARY INFORMATION: DOE issues notice of this Decision and Order in accordance with Title 10 of the Code of Federal Regulations (10 CFR) 431.401(f)(4). In this Decision and Order, DOE amends the current waiver applicable to Fujitsu's Airstage V-II equipment to require the use of AHRI 1230 as the alternative test procedure. Amendment is appropriate in this specific circumstance because DOE has recently issued waivers to other manufacturers using AHRI 1230 as the alternate test procedure for the same types of equipment, and AHRI 1230 is very similar to the alternate test procedure previously prescribed to Fujitsu, but will provide a more conservative estimate of the energy consumed by this equipment. The waiver requires Fujitsu to use AHRI 1230 to test and rate specified models from its Airstage V-II multi-split equipment line.

Today's decision requires Fujitsu to make representations concerning the energy efficiency of this equipment consistent with the provisions and restrictions of the alternate test procedure in the Decision and Order below, and the representations must fairly disclose the test results. (42 U.S.C. 6314(d)) The same standard applies to distributors, retailers, and private labelers when making representations of the energy efficiency of this equipment. Id.

Issued in Washington, DC, on February 28, 2012.

Kathleen B. Hogan
Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

Decision and Order

In the Matter of: Fujitsu General America, Inc. (Fujitsu) (Case No. CAC-040).

Background

Title III, Part C of the Energy Policy and Conservation Act of 1975 (EPCA), Pub. L. 94-163 (42 U.S.C. 6311-6317), established the Energy Conservation Program for certain industrial equipment, which includes commercial air conditioning equipment, the focus of this decision and order.¹ Part C specifically includes definitions (42 U.S.C. 6311), test procedures (42 U.S.C. 6314), labeling provisions (42 U.S.C. 6315), energy conservation standards (42 U.S.C. 6313), and the authority to require information and reports from manufacturers (42 U.S.C. 6316). With respect to test procedures, Part C authorizes the Secretary of Energy (the Secretary) to prescribe test procedures that are reasonably designed to produce results that measure energy efficiency, energy use, and estimated annual operating costs, and that are not unduly burdensome to conduct. (42 U.S.C. 6314(a)(2))

For commercial package air-conditioning and heating equipment, EPCA provides that “the test procedures shall be those generally accepted industry testing procedures or rating procedures developed or recognized by the Air-Conditioning and Refrigeration Institute [ARI] or by the American Society of Heating, Refrigerating and Air-Conditioning Engineers [ASHRAE], as referenced in ASHRAE/IES Standard 90.1 and in effect on June 30, 1992.” (42 U.S.C. 6314(a)(4)(A)) Under 42 U.S.C. 6314(a)(4)(B), if the industry test procedure for commercial package air-conditioning and heating equipment is amended, EPCA directs the Secretary to

¹ For editorial reasons, upon codification in the U.S. Code, Part C was re-designated Part A-1.

amend the corresponding DOE test procedure unless the Secretary determines, by rule and based on clear and convincing evidence, that such a modified test procedure does not meet the statutory criteria set forth in 42 U.S.C. 6314(a)(2) and (3).

On December 8, 2006, DOE published a final rule adopting test procedures for commercial package air-conditioning and heating equipment, effective January 8, 2007. 71 FR 71340. Table 1 to Title 10 of the Code of Federal Regulations (10 CFR) 431.96 directs manufacturers of commercial package air conditioning and heating equipment to use the appropriate procedure when measuring energy efficiency of this equipment. For commercial package air-source equipment with capacities between 65,000 and 760,000 Btu/h, ARI Standard 340/360-2004 is the applicable test procedure.

DOE's regulations for covered products and equipment permit a person to seek a waiver from the test procedure requirements for covered commercial equipment if at least one of the following conditions is met: (1) the petitioner's basic model contains one or more design characteristics that prevent testing according to the prescribed test procedures; or (2) the prescribed test procedures may evaluate the basic model in a manner so unrepresentative of its true energy consumption as to provide materially inaccurate comparative data. 10 CFR 431.401(a)(1). Petitioners must include in their petition any alternate test procedures known to the petitioner to evaluate the basic model in a manner representative of its energy consumption. 10 CFR 431.401(b)(1)(iii). The Assistant Secretary for Energy Efficiency and Renewable Energy (Assistant Secretary) may grant a waiver subject to conditions, including adherence to alternate test procedures. 10 CFR 431.401(f)(4). Waivers remain in effect according to the

provisions of 10 CFR 431.401(g).

On August 12, 2011, DOE granted Fujitsu a waiver from the DOE commercial air conditioner and heat pump test procedures for Fujitsu's Airstage V-II equipment. 76 FR 50204. On December 19, 2011, Fujitsu requested that DOE amend its order granting a test procedure waiver for these products to allow Fujitsu to test and rate its Airstage V-II equipment according to the American National Standards Institute (ANSI) / Air-conditioning, Heating and Refrigeration Institute (AHRI) Standard 1230-2010: Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and Heat Pump Equipment (AHRI 1230). Fujitsu also requested that DOE amend the definition of "tested combination" in the current alternate test procedure to allow for the use of up to 12 indoor units in the configuration of a basic model. The alternate test procedure Fujitsu is currently permitted to use specifies a maximum of eight indoor units for testing.

Assertions and Determinations

Fujitsu's Petition for Waiver Amendment

As explained in Fujitsu's waiver for its Airstage V-II equipment, these systems cannot be tested according to the prescribed test procedures for commercial products. Specifically, they contain one or more design characteristic that prevents testing according to the test procedures. According to DOE's grant of the August 2011 waiver, Fujitsu is not required to test or rate the products listed in the waiver based on the current DOE test procedure. Instead, Fujitsu is required to test and rate these products according to the alternate test procedure set forth in the

waiver.

The alternate test procedure prescribed in the August 2011 waiver was first prescribed in 2007, in response to two petitions for waiver from Mitsubishi Electric & Electronics USA, Inc. (Mitsubishi). The alternate test procedure was published on April 9, 2007. 72 FR 17528, 72 FR 17533. Since then, DOE has prescribed the same alternate test procedure for other manufacturers of multi-split products.

After DOE granted a waiver to Mitsubishi for its multi-split products, the Air-Conditioning and Refrigeration Institute (ARI) (now AHRI) formed a committee to develop a general testing protocol for VRF systems. The committee developed AHRI 1230, which has been incorporated into ASHRAE 90.1-2010. AHRI 1230 establishes a test procedure for VRF multi-split air conditioners and heat pumps. The test procedure covers matched VRF systems with cooling and heating capacities for outdoor units between 12,000 Btu/h and 300,000 Btu/h. DOE is assessing AHRI 1230 with respect to the requirements EPCA specifies for test procedures, and will make a preliminary determination regarding AHRI 1230 in a future rulemaking.

AHRI 1230 is very similar to the alternate test procedure in the commercial multi-split waivers that DOE previously granted to Fujitsu and other manufacturers, but contains minor differences in the definition of tested combination, the testing of ducted versus non-ducted indoor units, and the line lengths. These differences are discussed below.

First, the definition of “tested combination” in AHRI 1230 and the alternate test procedure prescribed by DOE in the earlier multi-split waivers are identical in all relevant respects, except that AHRI 1230 allows the use of up to 12 indoor units, as opposed to eight in the earlier alternate test procedure.

Second, ANSI/AHRI 1230-2010 requires an additional test. The earlier alternate test procedure provides for efficiency rating of a non-tested combination in one of two ways: (1) at an energy efficiency level determined using a DOE-approved alternative rating method; or (2) at the efficiency level of the tested combination utilizing the same outdoor unit. In AHRI 1230, similar to the residential test procedure set forth in 10 CFR part 430, subpart B, appendix M, multi-split manufacturers must also test two or more combinations of indoor units with each outdoor unit. The first system combination is tested using only non-ducted indoor units that meet the definition of a tested combination. The rating given to any untested multi-split system combination having the same outdoor unit and all non-ducted indoor units is set equal to the rating of the tested system having all non-ducted indoor units. The second system combination is tested using only ducted indoor units that meet the definition of a tested combination. The rating given to any untested multi-split system combination having the same outdoor unit and all ducted indoor units is set equal to the rating of the tested system having all ducted indoor units. The rating given to any untested multi-split system combination having the same outdoor unit and a mix of non-ducted and ducted indoor units is set equal to the average of the ratings for the two required tested combinations.

Third, the alternate test procedure and AHRI 1230 require the use of different line lengths

for the cooling refrigerant line when performing efficiency testing. AHRI 1230 requires longer line lengths depending on the type and capacity of the connected indoor units.

As DOE continues to evaluate AHRI 1230, DOE has granted manufacturers' request to use AHRI 1230 as the alternate test procedure for testing and rating their commercial multi-split products subject to a waiver of DOE's test procedures. DOE prescribed AHRI 1230 as the alternate test procedure for those Daikin AC (Americas) Inc. ("Daikin") commercial multi-split products that have cooling capacities less than or equal to 300,000 Btu/h (76 FR 34685, June 14, 2011), for Carrier Corporation's ("Carrier") commercial multi-split products (76 FR 31591, June 2, 2011), and for Mitsubishi's commercial multi-split products that have cooling capacities less than or equal to 300,000 Btu/h. (76 FR 65710, Oct. 24, 2011)

Consistent with the requests of these other manufacturers, Fujitsu requested that DOE permit it to use AHRI 1230 as the alternate test procedure to test and rate its Airstage V-II equipment. AHRI 1230 covers multi-split products with cooling and heating capacities for outdoor units from 12,000 Btu/h to 300,000 Btu/h. Fujitsu's Airstage V-II product line includes outdoor units with capacities from 72,000 Btu/h to 288,000 Btu/h. Thus, similar to DOE's decision in the Daikin and Mitsubishi waivers, Fujitsu requested that DOE prescribe AHRI 1230 as the alternate test procedure for its Airstage V-II equipment. DOE has determined that use of AHRI 1230 is appropriate for Fujitsu's Airstage V-II products for the reasons set forth below.

As discussed above, AHRI 1230 requires longer line lengths for the cooling refrigerant line during testing, depending on the type and capacity of the connected indoor units. This

difference affects the resulting energy efficiency determination. Testing according to AHRI 1230's requirements provides a more conservative estimate of energy consumption because it results in a slightly lower efficiency rating than testing according to the alternate test procedure.

In addition, the definition of "tested combination" in AHRI 1230 is more appropriate for these Fujitsu products than the definition in the current alternate test procedure. As defined in the current alternate test procedures for Fujitsu's products, the "tested combination" of a VRF system is defined as one outdoor unit matched with between two and eight indoor units. The indoor units must represent the highest sales model family, and, together, must have a nominal cooling capacity that is between 95% and 105% of the nominal cooling capacity of the outdoor unit. Due to the relative size of some of Fujitsu's outdoor units and indoor units, permitting the matching of up to only eight indoor units may not be sufficient to comply with the requirement that the indoor units must have a combined capacity that is between 95% and 105% of the nominal cooling capacity of the outdoor unit. AHRI 1230, as revised in March 2011, permits the use of up to twelve indoor units. DOE is evaluating AHRI 1230 to determine whether to incorporate it into the applicable test procedure.

For the reasons discussed above, and because DOE's prescribed AHRI 1230 as the alternate test procedure in waivers granted to Carrier, Daikin and Mitsubishi, DOE determined that allowing Fujitsu to use AHRI 1230 instead of the alternate test procedure provided in the August 2011 waiver is in the public interest.

Conclusion

After careful consideration of all the materials submitted by Fujitsu, it is ordered that:

(A) Fujitsu is not required to test the equipment listed in the Airstage V-II waiver granted

August 12, 2011 (76 FR 50204) according to the test procedure for commercial package air conditioners and heat pumps prescribed by DOE at 10 CFR 431.96 (ARI Standard 340/360-2004 (incorporated by reference in 10 CFR 431.95(b)(2)-(3)), but instead shall use as the alternate test procedure ANSI/AHRI 1230-2010.

(B) Tested combination. The term “tested combination” means a sample basic model comprised of units that are production units, or are representative of production units, of the basic model being tested. For the purposes of this waiver, the tested combination shall have the following features: The basic model of a variable refrigerant flow system (“VRF system”) used as a tested combination shall consist of an outdoor unit (an outdoor unit can include multiple outdoor units that have been manifolded into a single refrigeration system, with a specific model number) that is matched with between 2 and 12 indoor units; for multi-split systems, each of these indoor units shall be designed for individual operation.

(C) Representations. In making representations about the energy efficiency of its Airstage V-II multi-split equipment, for compliance, marketing, or other purposes, Fujitsu must fairly disclose the results of testing under the DOE test procedure in a manner consistent with the provisions outlined below:

- (i) For multi-split combinations tested in accordance with this alternate test procedure, Fujitsu may make representations based on those test results.
- (ii) For multi-split combinations that are not tested, Fujitsu may make representations based on the testing results for the tested combination and that are consistent with one of the following methods:

- (a) Rating of non-tested combinations according to an alternative rating

method approved by DOE; or

(b) Rating of non-tested combinations having the same outdoor unit and all non-ducted indoor units shall be set equal to the rating of the tested system having all non-ducted indoor units.

(c) Rating of non-tested combinations having the same outdoor unit and all ducted indoor units shall be set equal to the rating of the tested system having all ducted indoor units. To be considered a ducted unit, the indoor unit must be intended to be connected with ductwork and have a rated external static pressure capability greater than zero (0).

(d) Rating of non-tested combinations having the same outdoor unit and a mix of non-ducted and ducted indoor units shall be set equal to the average of the ratings for the two required tested combinations.

(D) This waiver amendment shall remain in effect from the date this Decision and Order is issued, consistent with the provisions of 10 CFR 431.401(g).

Issued in Washington, DC, on February 28, 2012.

Kathleen B. Hogan
Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

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